

Matas (R.) 1884.
N. O. M. & S. A. J.
188. - 4, n. s., XT, 510-525

MORBID SOMNOLENCE.

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[Read before the N. O. Medical and Surgical Association.]

In travelling over the Mexican frontier in the month of September, 1882, while on my way from Matamoras to the fever-stricken town of Mier, I reached a lonely settlement known as the ranche of La Mesa (so-called, because it is situated ^{on} an elevated, flat-topped hillock), where I stopped, as is customary with all travellers following that itinerary, to relieve the cramping confinement of the travelling coach, and to refreshen with whatever hospitalities that unpromising station afforded.

After indulging in the sundry articles that constituted the diminutive *menu* of a rustic, though, nevertheless, substantial and enjoyable repast, I was accosted by several residents, who knowing that their guest was a *senor medico*, began to pour upon me the narratives of their various medical tribulations. Among the several cases that were shown me during the brief moments that I remained in that worthy place, one in particular attracted my attention. A young ranchero, about twenty-four years of age, named José, was presented to me by his father as a sufferer with what he styled "*un mal de sueno* (a sleepy sickness).

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This unfamiliar, though not altogether new designation, immediately directed my attention to the young fellow, who accompanied his father, eyed me in a pretty bright and intelligent manner for a sleepy man. His father, a comparatively intelligent herdsman, told me that his son had, since the last month and a half, manifested a tendency to sleep quite out of proportion with his former habits. Previous to that time José had been very active and diligent in the performance of his duties, and in fact, like most country folks, was a very early riser. His trouble appeared to begin with a lengthening of his morning sleep, gradually increasing to a prolongation of the mid-day *siesta*, which was often stretched to a slumber of 8 or 10 hours duration, leaving him in reality but a few hours of wakefulness. Lately he had had perfectly wakeful moments, which appeared to interrupt with activity and wakefulness very long spells of sleep which lasted 24 or even 48 hours. The somnolent periods, from the imperfect history I could gather, were coming on paroxysmally and increasing in duration, a fact that appeared to alarm both the patient and his family. The disorder was not ascribed to any particular cause, excepting it might have been a prolonged ride in an open and unsheltered road during a very hot day. While conversing with the father, I noticed that the patient, who, I was told, was then enjoying one of his brightest days, became slightly flushed in the face and then lost color again. I asked him how he felt, he told me "*muy bien*" (perfectly well); his pulse was about 74, his tongue was clean and without indentations, his bowels in good order, though slightly costive at times, and his skin normally warm and humid to the touch. Shortly after our conversation began, the patient, who had already expressed a desire to be medicated for his condition (which he sensibly regarded as an affliction), became apparently less attentive to my questions, and though evidently endeavoring to control himself appeared to struggle vainly with his lids which were repeatedly dropping over his eyeballs, as if heralding the arrival of the Sleep-

God. I left the 'jacal' at this juncture to procure my thermometer which I had left in the coach ; when I returned, a few moments afterwards, the father took me by the arm and pointed to his son, who sitting on the box where I had left him, had calmly propped his back against the wall and fallen asleep. The old man, with a pained look, said : " If I'd let him alone he would sleep this way for a week." I approached the sleeper ; he looked paler than before, though his pulse beat at the same rate ; I called to him but he did not answer, and it was not until his father had severely pinched his ears that he woke up and slowly apologizing, said : '*dispense, su merced,*' (excuse me, sir). His sleep, I was told, was always of a natural character, calm, tranquil, apparently rarely if ever troubled by dreams, and not associated with deep stertor or even snoring. Whenever a sleepy spell overtook him it mattered not what he was doing, whether eating, conversing, or even while riding on horseback, or when herding sheep or cattle, he would certainly lapse into a doze. As I have already said, the boy appeared strong, healthy and intelligent enough. He complained of no headache or fever, though he had malarial intermittent some time before, a malady not infrequent in that swampy district. His eyelids were not significantly puffy. The pupils were normal in their reaction to light, and without disparity. There was no ptosis, strabismus or nystagmus ; no paralysis anywhere, and no fault could be found with his cutaneous sensibility. The urine I could not examine for want of time and convenience, though I can hardly believe that there was any renal trouble, as he passed urine in the customary quantity, and had none of the tortuous or thickened arteries that usually indicate the most common and dangerous forms of the Brightic kidney.

What then was the cause of this sleepiness ? What pathological state did underlie so inexplicable a condition ? These and other kindred questions assailed my mind while I examined the unfortunate victim of this peculiar dis-

order. While I questioned, the reminiscences of past clinical experience brought back with them no case analogous to this; one only, I remembered, and that was also an interesting instance of somnolence, but not idiopathic or essential in character, as it was connected with a large and well marked cerebral tumor.

It is valuable enough, however, to intercalate here :

In the winter of 1881, a young woman, aged about 22 years, was admitted into ward 35, Charity Hospital, during Prof. Lewis' term of service. The symptoms that specially led her to seek admission were a constant drowsiness accompanied by a continued frontal cephalalgia. In this patient the somnolence, amounting almost to stupor at times, was so great towards the last that it was one day accidentally mistaken for opium poisoning, on account of a very minute quantity of morphia and chloral that had been given unadvisedly to relieve the headache. I recollect that atropia, caffeine, emetics, cold douches and flagellations were applied for hours with the effect only of partially rousing the patient. Not long after this incident full coma set in and the patient died; and, as the professor suspected, the autopsy revealed a large tumor—a glioma—that was cut in half upon exposing the centrum ovale majus of the left hemisphere. In this case there was ptosis of the right eye, mydriasis of the same side, and the unceasing headache which were sufficiently indicative of the actual condition.

Therefore, to return to our rural case, we had, in the absence of any such symptoms, no guides, no clue which could be grasped in a brief but attentive survey; nothing to lead to a definite conclusion, excepting to that truistic one that I was in the presence of a case of essential or idiopathic morbid hypnosis. (!)

In the meantime, the therapeutic question stared me in the face: "What would the doctor prescribe?" was the parents' anxious inquiry. I ignored the *causa morbi*, but the slight anæmia and the history of intermittencies, coupled

with a past malarial history, suggested the only available treatment—*i. e.*, black coffee in large quantities, cold baths in a neighboring pond, and especially a pill of quinia, arsenic, strychnine and iron, the only drugs for such a case that could probably be obtained in the neighboring and scantily supplied town of Reynosa. A small quantity of amyl nitrite, that I had in my case for emergencies, was divided and some left for inhalation, to be used after the preliminary flushes of the face had inaugurated the attack.

The results of this treatment and the final termination of the case, I have never learned. The data above presented are merely extracts from my memorandum book, in which I retained this incident among various others, more as a *souvenir de voyage* than a medical observation; it served as a theme for cogitation for some hours after, but the difficulties of Mexican travel and the dangers, responsibilities and other engrossing occupations attending medical relief during a yellow fever epidemic, soon drowned this petty observation and maybe would have extinguished it altogether in my recollection had not the repetition of the same phenomenon, though on a lesser scale, in a case that I attended upon my return to the city, recalled it to memory, and incited me to further research in this direction.

This person, a gentleman about 31 years of age, thin, unhealthy, scrofulous, but energetic and of marked mental powers, had contracted syphilis many years previous to his last trouble. He considered himself cured of his specific symptoms, but I believe he was not yet altogether free from its later manifestation. When he consulted me for his trouble, he complained of an intense cervico-dorsal neuralgia, characterized by lightning-like pain, which intermittently, but frequently, darted from the occiput down to his arms and back. Accompanying these neuralgic paroxysms I noticed that as the pains began to lose their intensity, he also appeared to lose his energies, was apathetic, torpid and finally sleepy. Frequently he fell asleep in my presence, even during conversation, and at times, in vari-

ous offices where he had to transact business, dropping into a chair and dozing away, indifferent altogether as to the convenience or urbanity of the proceeding.

While these spells lasted he was unusually morose, taciturn, unsociable, and seemed only to hanker after the bed, which, as a rule, in health he comparatively cared little for. The only apparent connection that I was able to trace between his sleepiness and neuralgia was in an anæmic pallor that spread over his countenance during the somnolent period. He was placed under tonics, strychnia, iron, arsenic, phosphide of zinc, together with hypodermic injections of morphia and atropia, under which he sufficiently recovered to undergo the fatigue and inconveniences of an extended tour through the west.

The three cases that I have just sketched are clinically different one from the other. In one, the first, a history, imperfect it is true, is presented, in which the condition, sleep, is progressively growing in the individual; it is assuming the vital rôle in the play of his life and appears to be preparing for a rapid and dominating absorption of the individual's rational existence,—this case is unexplained by any co-existing complications, its origin is unknown, and to my mind appears to be a new species in the genera morborum.

The cause of excessive sleep in one of the remaining cases will be easily recognized in the encephalic tumor, which, by gradually compressing the cerebral mass, gave rise to anæmia. The third case is also new to me, though it is different from the first in the co-existence of another and well characterized nervous derangement. The occurrence of cases similar to the above are not altogether rare in practice, as we have heard of some analogous experiences from others, and the existence of a sporadic disorder especially characterized by an exaggerated tendency to sleep, independent of all similar though recognized symptomatic disturbances, appears to me plausible. Certainly the consideration of a few cases which I have

culled from various sources, and which bear some very close analogies to the preceding, would tend to strengthen this view.

The following case reported by Dr. E. Paz in the *Cronica Medico Quirurgica* of Havana for 1876 (p. 328) was studied in Spain, and has some features analogous to my somnolent patient already described as afflicted with cervico-dorsal neuralgia.

A man, J. M., a native of the province of Toledo, Spain, aet. 39, of good constitution, plethoric habit and good family antecedents, remembers having had no illness until the present trouble attacked him. He says that about the month of July, 1864, while mowing in a hay-field, was caught in a shower and drenched to the skin. Without changing his clothes, he laid down to sleep on a wet pallet. When he woke up he had a chill, accompanied by great pains, which prevented all movements of the body, for the time being. He was removed to a neighboring town, where, under appropriate treatment, he was gradually relieved of most pains excepting that at base of skull, about the nucha and cervical region, which persisted for twelve years. In this particular region the pains remained almost as acute as in the beginning.

As the general pains, or neuralgiæ, disappeared, he observed that, especially after eating, an irresistible tendency to sleep set in, accompanied by heaviness of the head and general dullness of disposition. During the second year of his illness the attacks of somnolence occurred frequently—twenty or more times a day—always preceded, however, by an aggravation of pain at the base of the cranium and cervical region. A peculiarity about these neuralgic pains was that they lasted for a very short time, and left him with the sleepiness only, which deprived him of a great deal of valuable time. Towards convalescence these neuralgic and sleepy attacks diminished in frequency, being limited to five or six spells a day.

This case continued to improve, though its final termination is not known.

In the *Medical Times and Gazette* (London) of August, 1863, Dr. J. Ward Cousins, Surgeon to the Portsmouth Royal Hospital, publishes a note on a singular case of profound and long sleep. A gentleman, aet. 43, has been subjected for the last twenty years, prior to this observation, to attacks of prolonged somnolence. He had never been sick, neither did he experience any symptoms which denoted a cerebral affection. His disease began in 1842, and lasted that year. After a long interval (two years), during which he enjoyed good health, it reappeared. This spell lasted eighteen months, when it disappeared again, to return twelve years after. Since 1860 he has been troubled with exaggerated sleep. He now goes to bed at 10 P. M., and immediately falls into a slumber from which it is impossible to rouse him by ordinary means of stimulation. He generally lies down on his side, and presents the appearance of a person [plunged in a tranquil and invigorating sleep. The face, and ears, especially, are pale; the skin in other parts of the body preserves its normal warmth, excepting the extremities (feet and ears particularly), which are frequently cold and livid. The pulse is slow and weak, the pupils generally dilated, the respirations shallow. His sleep is unaccompanied by sighs or ronchi. He usually wakes up suddenly, but this is often not until four or five days have been passed in this hypnotic condition. Lately, he has slept three days in succession, frequently four—on an average two days. He generally passes four or five hours out of the forty-eight in wakefulness. His sleep is not troubled by dreams. The sphincters maintain their tonicity. Before sleeping he complains sometimes of mental torpidity, but he has never presented any sign of deranged intellection or irregular cerebral functionation. He has a good memory, and when he wakes up remembers perfectly all that has been said and done before his sleep began, and always inquires into its duration. For some time past this patient

has been losing flesh. He is now pale, though his appetite is good, his digestion normal, and evacuations regular. He is of a benevolent disposition, enjoys good reading, and is endowed with a quickly perceptive and highly organized mind. In the beginning of his sickness (1848) he suffered from spasmodic trismus, which usually began shortly after sleeping and was prolonged several hours. At the same time he suffered from pains in the back and neck. Since that time, however, he has not been afflicted with these pains.

Dr. Cousins attributes the trouble in this case to cerebral anæmia, though the ultimate result of the disease is not stated.

Another curious case of this kind is published by Dr. Marduel in the *Lyon Medical*, for October, 1872,* which may be summarized as follows: A soldier, æt. 25, on July, 1870, received a slap in a dispute; shortly after he was in a general tremor; one hour later he fell into a doze which was intensified into a deep sleep lasting without interruption 71 hours. In November, 1870, he slept steadily for three consecutive days. In March, 1871, he falls into another sleeping fit and slumbers five days; in May, two spells lasting three days consecutively; in July, two days; and in March, 1872, several attacks that last 48 hours. On March 21, one of these well-marked paroxysms is observed; sleep is profound, sometimes changes place and decubitus in bed; skin insensible. If he is disturbed purposely a tetanic rigidity seizes the extremities; a strong electric current awakens patient causing procurory clonic spasms. This last spell has lasted 72 hours and is followed by epistaxis; temperature always normal; has lost 1 kilogram of weight since last paroxysm. In the wakeful state he eliminates through the kidneys no more than 17 grams of urea, when normal quantity should amount to 30 or 40 grams in 24 hours.

Other isolated and remarkable cases of morbid sleep,

* Quoted by Antonio Mestre in a valuable paper on "el mal del Sueño," *Cronica Medico Quirurgica*, p. 355, vol. ii."

or a condition simulating it in every particular, though not frequent in medical literature, have been recorded. Fournier* cites several cases of this kind.

“ A young woman in perfect health suddenly experienced such an irresistible desire to sleep that she sought refuge in a solitary and unfrequented place where to realize her inexplicable desire unmolested : her sleep lasted eight consecutive days, when she was awakened by the great stir and noise produced by a number of persons who surrounded her. She was very much weakened by this prolonged fast, and death would have been certain if the sleep had not been interrupted.” A young girl, 8 years of age, a victim of parental cruelty, sought safety one day in some neighboring hedges, where, after wandering considerably, she fell asleep on a heap of moss ; she was not discovered until seven days had passed, when she was found in a state bordering on asphyxia.

Fournier also reports the history a pious young lady living in the environs of Avignon, who was seized with a profound sleep, which she previously announced would last forty days. She was considered dead ; but after exposing the body to public inspection, and after observing that no signs of putrefaction showed themselves, the inhumation of the supposed cadaver was deferred until evidences of decomposition would set in ; at the expiration of forty days, as previously stated by the woman, she awoke ; the same phenomenon was repeated several times in subsequent years. This case, which is properly one of either fraud or catalepsy, belongs to the order of the Louise Lateau, the Welsh fasting girl, and other instances of hysteroidal perversion of general nutrition, and can not be ranked as properly one of idiopathic somnolence ; it is well, however, to remember that some authenticated cases, in which a lethargic sleep has existed for forty or fifty days, have been reported, among which we can prominently refer to Dr. Blandlet's case (*Gazette Hebdomadaire*, 1864,) in which a patient was repeatedly afflicted with a somnolence that lasted over

* “ *Cas Rares* ” (*Dict. des Scien. Med.*, Paris, 1813).

one month and a half—nearly sixty days, at intervals of a few years.

These last cases, properly speaking, belong to the category of cases so thoroughly studied by MM. Charcot, Bourneville, and by M. Richer, in the *Salpêtrière*, and really pertain to the domain of hystero-epilepsy.

A remarkable form of prolonged sleep, which is often the precursor of death, is not rarely met with in the aged: this sleep it is difficult to interrupt by awakening the patient: consciousness is lost gradually, the will power is altogether impaired towards the last, and the patient dies without recognizing his surroundings. It was known anciently as the *febris soporum senum*.

A form of disease not unlike the single cases that have just been related but which is in reality more a curiosity of medical geography than a disease of any practical importance to the physician, in this country at least, is the remarkable sleeping sickness of Western Africa. As this disorder is not altogether foreign to the present subject, and presents some curious and certainly not generally known features, I will devote a few moments to its consideration.

Our knowledge of this disease practically dates back no farther than the last 25 years. Dr. William M. Winterbottom, who filled the important position of physician to the colony of Sierra Leone, where he lived four years, published an interesting work in 1803, entitled "An Account of the Native Africans in the Neighborhood of Sierra Leone," in which the disease was first mentioned. In 1828 and 1829, he also contributed a series of articles to the *Edinburgh Medical and Surgical Journal*, in which he devoted special attention to this sickness. More recent writers, however have contributed extensively to the literature of the subject, and described more accurately the clinical history of the disease, prominent among whom could be mentioned, McCarthy, Clark and Gore, among English writers; and Danfaix, Gaigneron, and Guérin, among French authors.

Chas. Dangaix, a French naval surgeon, wrote, in 1861, probably the most extensive and detailed observations on this sickness. His article which appeared in the *Moniteur des Hopitaux* (No. 100), soon attracted attention and gave rise to considerable discussion. This disease, according to this writer, is limited in its endemic prevalence to the western coast of Africa, in the Congo country, extending south from the Congo or present Livingstone river to about the 15th degree, south latitude, where the Nourse river separates it from the Ovamba country. Though the disease seems to prevail with special intensity in this portion of the African coast, it is not improbable that when the medical topography of all these regions, and particularly those almost unknown and unexplored, lying immediately east of the Kong Mountains, will have been studied, it will be found that the "sleeping sickness" has a much wider range of prevalence than it is generally credited with. It is a fact, anyway, that Winterbottom and Mr. Clark studied it in the British possessions of Sierra Leone, and Pruner-Bey in Egypt, countries that are certainly in much higher latitudes than those usually assigned to it by medical writers. Along the Congo and in Benguela, the disease is known by the natives under the several names of *Ntonzi* and *Talangolo*, at other places it is designated *M'hazo-Nicto*; Europeans have simply called it the *sleeping sickness*, *sleeping dropsy*, etc. M. Dangaix, who appears to have observed the disease *in loco*, though certainly to a rather limited extent (only three cases), says that three degrees of the malady can be recognized: 1st. A tendency to sleep which comes on at unusual moments and continues during an abnormal length of time. The expression is sad and care-worn; skin sometimes normal to the touch, sometimes hot, dry and rugous; pulse small, and irregularly frequent. 2d. Sleep growing daily more continuous and imperative, especially during the day; it frequently overtakes patient in the midst of conversation, cutting short a phrase or word; intelligence blunted, vision and

audition impaired; hesitating and at times "saltatory" gait; pulse tranquil, regular. Towards evening, not infrequent heaviness of head and supra-orbital cephalalgia; occasional diarrhœa. 3rd degree. Sleepiness more marked, more profound and less interrupted. The face expresses stupidity, often bestial imbecility; eyes prominent and injected; general prostration. Though the appetite persists the weakness is so great that it is often necessary to feed the patient. Persistent and intractable diarrhœa sets in as a premonitor of the approaching end.

"The sleeping sickness is *intermittent* in character; the somnolence disappears after some days duration, and appears after a more or less irregular period of normal vigilance. This disease has a general duration from 4 to 5 months, and so far, no matter what measures have been tried in the way of therapeutic relief, nothing has succeeded in modifying its deadly progress. In the autopsies that have been made, nothing more than inconstant though frequent congestion of the sinuses with an excess of intracranial fluid have been detected, an anatomical fact, which seems to be the only cause for the designation—'sleepy dropsy,' a term which, Mr. Clark says, is a translation of the original Congo appellation.*

"The causes of the disease are entirely unknown; but it is certain that all races excepting the black enjoy an immunity from its attacks. It cannot be said that this affection is dependent upon the influence of climate for its causation, as it has been observed in mid-ocean, in the Eastern as well as in the Western Coast of Africa, in Lower Egypt, and, as we will see further on, in other parts of the tropical zone. No single cause outside of ethnical influence can be appealed to in order to explain its ætiology; and this last, is but a predisposing cause, the determining or immediate factors not having been yet recognized."—(Boudin, *ibid.*)

Though M. Boudin has said that the disease is limited purely to the Negro race, and almost every writer agrees

* Boudin, *Bulletin de la Société d'Anthropologie*, Dec., 1861.

with him in this respect, Dr. Guerin, of Martinique, in a very authoritative thesis on the subject, written Aug., 1869, and published in the *Archives Generales de Medicine*, 1869 (vol. ii, p. 605*), says that: "It is wrong to suppose that this disease is always to be but a mere nosological curiosity for practical physicians, for we," he says, "have had an opportunity of observing in Paris, itself, two cases of disease which agree in every particular with the African sickness, and we are convinced that examples of the same malady would multiply greatly if only the attention of professional men would be directed to this subject."

After describing the clinical peculiarities of his cases, Dr. Guerin says: "The prognosis of the sleeping sickness is of the gravest character. None of the physicians who have ever written on this malady appear to have cured a single case, and we, who have treated over 148 of its victims can claim but *one* recovery, and that we believe was owing chiefly to the fact that the malady was attacked in its incipency and before dangerous symptoms developed."

From the above citation we see that the sleeping sickness (or hipnosia, as it has been called by Dr. Dangaix) exists or has existed in America. However, its presence on this continent can be easily accounted for. It has been directly traced to importation from slave-ships, which, loading up with diseased Negroes on the Congo Coast, and other African centres of slave traffic, have readily transported it to the Antilles; Dr. Dangaix, in fact, believes that one per cent. of all African slave emigrants to this country succumbed *en route* from their native land to the Antillean Archipelago. Dutruleau and Gaigneron have given an account of its prevalence in Gaudaloupe. Guerin has carefully observed it in Martinique, and under the expressive designation, 'the lethal sleep' (*sueno mortal*), it has been described by Dr. Jose Argumosa, in Cuba. The last observer reported 16 very graphically described cases of the disease in the *Cronica Medico Quirurgica* of Havana.

* Quoted by Dr. Antonio Mestre, loc. cit.

His last case was observed in 1866, and since that time it would appear that the disease has disappeared, or at least very greatly diminished in Cuba, for he never has seen any more cases, though they certainly were very common in the days when the slave-trade was in full activity. Though Dr. Argumosa observed this disease independently and without a knowledge of its African origin, he reached to most of the conclusions arrived at by other observers who originally studied it in its hot-bed. He says, "it appears to attack only African-born negroes; it does not respect age, sex nor physical condition. None of the methods of treatment have succeeded in curing the disease; all have signally failed, the termination being always fatal, for which reason I have named it the 'deadly sleep.'"

From this observation, it would appear that the disease is not essentially contagious or infectious, as it has limited its attacks, in Cuba at least, to those negroes who had evidently contracted it in their own home just before leaving on their transatlantic journey, or while confined in the contaminated vessels.

It is surprising to us that no record of this interesting complaint should have been preserved in Louisiana and other southern States, for this malady must have surely existed and prevailed even largely, I would presume, among the native Africans brought to this country, at least in the earlier days of the slave-trade.

Finally, and before terminating the remarks on this curious sickness, I would refer to some points in its history more recently emphasized by McCarthy (quoted by T. W. Ogle, *Med. Times and Gazette*, July, 1873) and by A. Gore (*British Med. Journal*, 1875), who have studied the malady in its endemic foci, and who state that in every case there is a marked enlargement of the cervical lymphatic ganglia, which form a moniliform chain along the whole neck from the angle of the jaw to the clavicle. The treatment adopted by the native "doctors" is to extirpate every one of these enlarged glands. McCarthy says: "I have never witnessed the operation, but it is said to be of

a radically curative value. I have counted as many as 13 cicatrices in the neck of one individual. I believe the sleepiness is produced by a compression of the nutrient vessels of the brain and the consequent anæmia of this organ. It is known that the lymphatic ganglia are very numerous at the bifurcations of the carotid, and any compression exercised about this region of the neck may be followed by the sleepy symptoms referred to. The 'doctors' remove these bodies without knowing the principle of their operation; indeed, they have not the faintest notion of anatomy. Yet no accident has ever been known to follow their empirical intervention."

In summarizing what has been said in the preceding pages, and in condensing our own unexpressed views on the subject, we will conclude as follows:

1st. That a disorder, apparently functional in character, idiopathic (because its cause is unknown) and characterized by abnormally protracted and frequently repeated sleep-spells, exists; and until its ætiology and pathology have been better ascertained, deserves a separate and independent place in the nosology.

2d. That in view of the periodicity of its attacks and the pallor of the face, with which it is accompanied in many cases, its association with other functional nervous disturbances, such as neuralgia, etc., would presuppose it to be a disorder of the sympathetic, affecting with special intensity, the intra-cranial vaso-motor nerves, and inducing through their spasm or contraction an anæmia of the brain, at the present moment the most plausible theory of sleep-production.

3d. That malarial influences *may* affect the sympathetic in this way, though paludal agencies can often be excluded from the causation of such cases.

4th. That all other symptomatic somnolences, such as those associated with organic brain disease; uræmia, and various other forms of blood-poisoning, together with the specific sleeping disease of Western Africa, and the other states, known as catelepsy, lethargy, etc., pertaining to the class of hystero-neuroses, should be excluded from the functional hypnosis in question.